

FIG. 1A

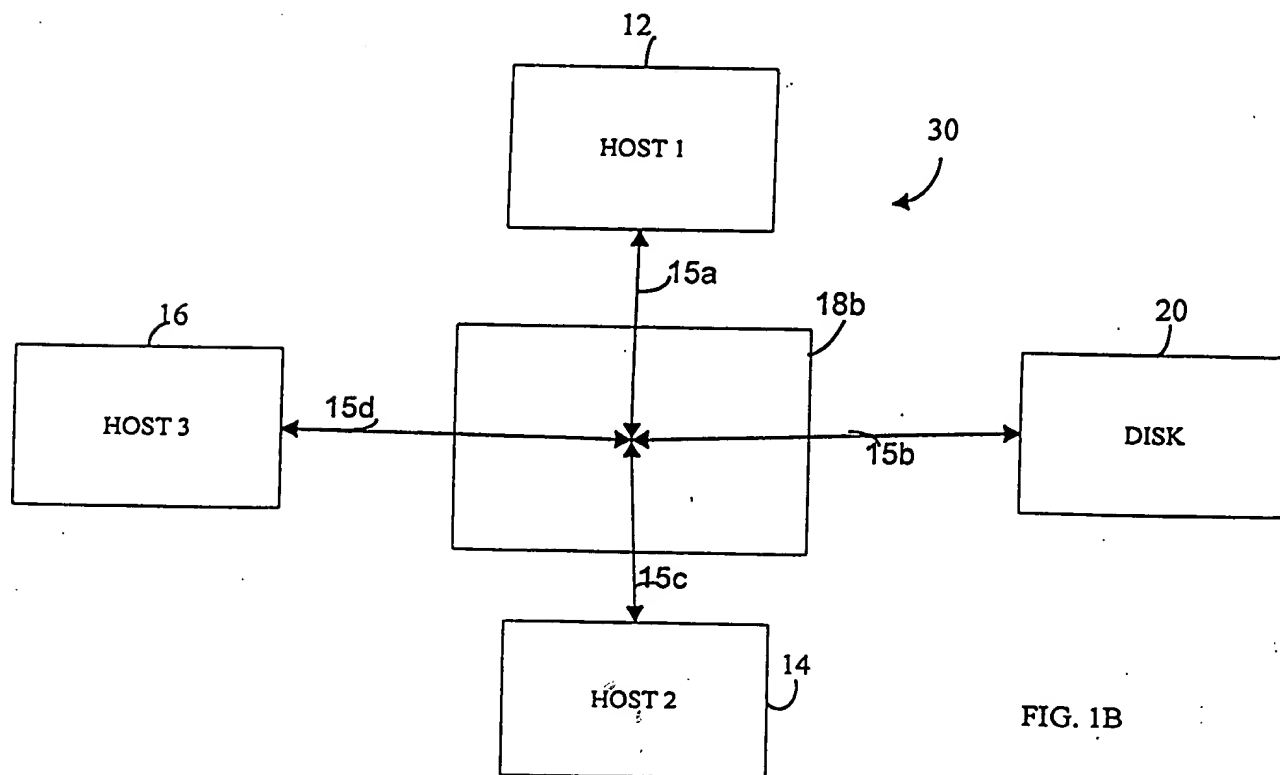


FIG. 1B

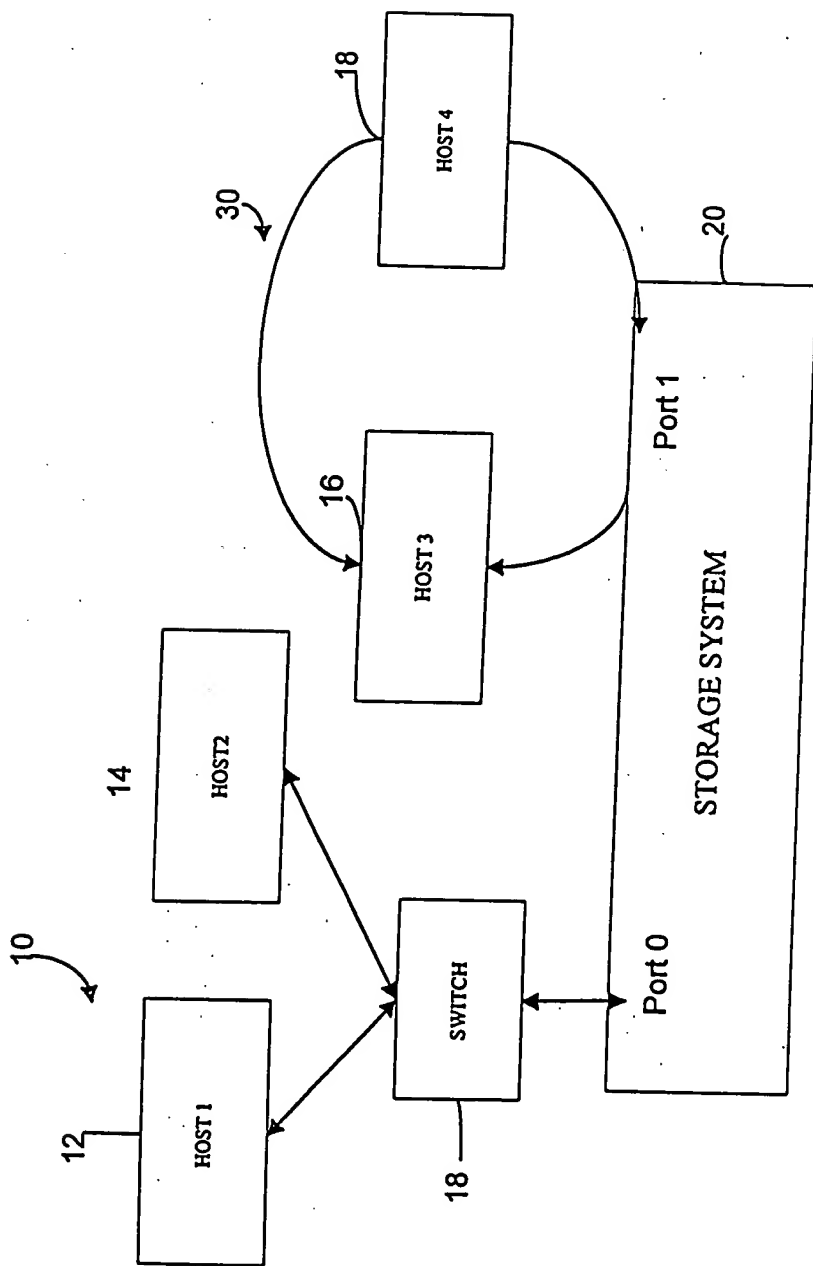


FIG. 1C

FIG. 1C is a schematic diagram of a network topology. The network includes Host 1 (12), Host 2 (14), Host 3 (16), Host 4 (18), a Switch (18), and a Storage System (20). Host 1 (12) and Host 2 (14) are connected to the Switch (18). The Switch (18) is connected to Port 0 of the Storage System (20). Port 1 of the Storage System (20) is connected to Host 3 (16). Host 3 (16) and Host 4 (18) are connected by a curved line labeled 30, indicating a direct link or a specific network path.

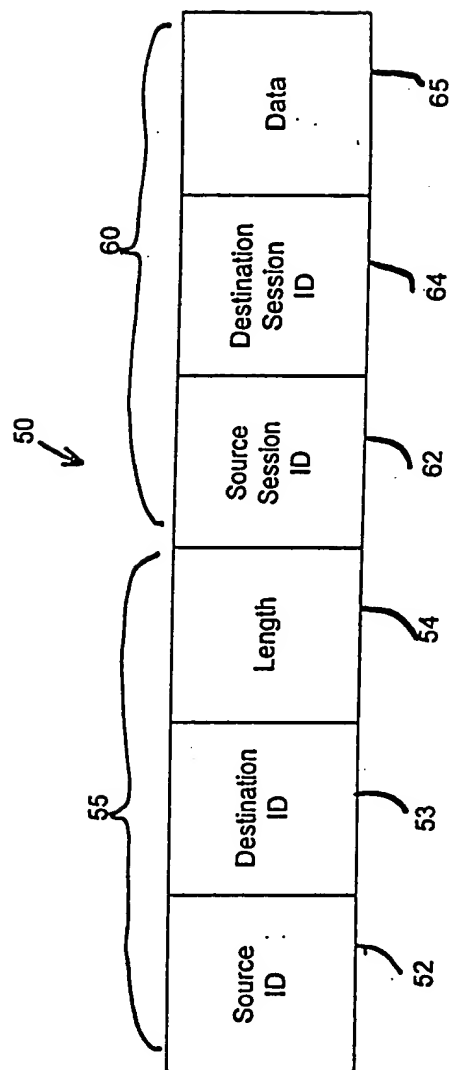


FIG. 2

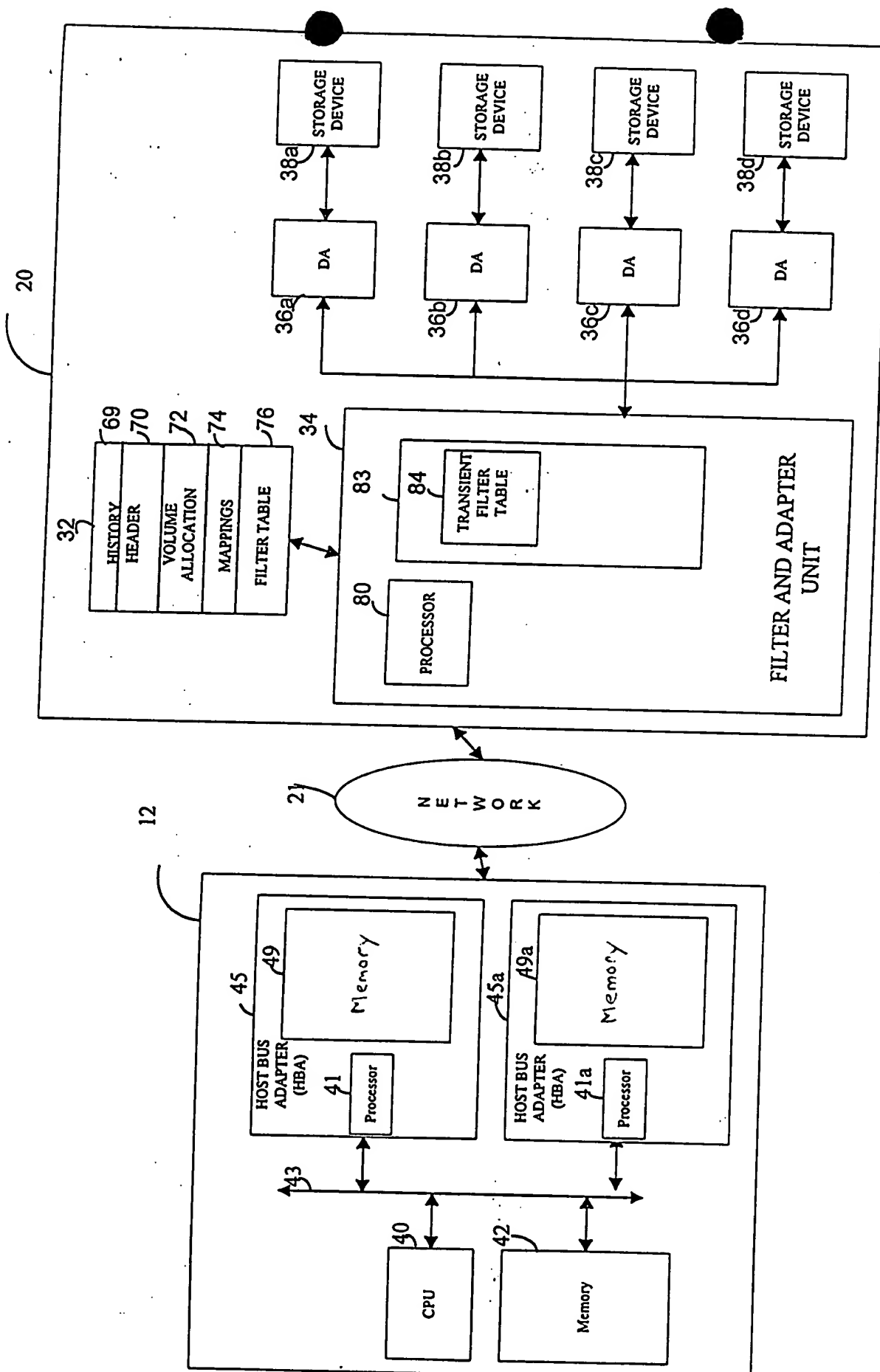


FIG. 3

FIG. 3 is a block diagram of a system architecture. The system includes a host system (12) connected to a network (21) and a filter and adapter unit (20). The host system (12) contains a CPU (40) and memory (42) connected to a host bus (43). Two host bus adapters (41, 41a) are connected to the host bus and the network. Each adapter has its own processor and memory (49, 49a). The filter and adapter unit (20) contains a processor (80), a transient filter table (84), and a filter table (76) with fields: history header (69), volume allocation (70), mappings (72), and filter table (74). It also includes four data adapters (36a, 36b, 36c, 36d) each connected to a storage device (38a, 38b, 38c, 38d).

| | | | |
|---------|------|------------|-----|
| HBA WWN | FLAG | LUN BITMAP | 76a |
| HBA WWN | FLAG | LUN BITMAP | 76b |
| HBA WWN | FLAG | LUN BITMAP | 76c |
| HBA WWN | FLAG | LUN BITMAP | 76d |
| HBA WWN | FLAG | LUN BITMAP | 76e |
| HBA WWN | FLAG | LUN BITMAP | 76f |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| HBA WWN | FLAG | LUN BITMAP | 76n |

FIG. 4

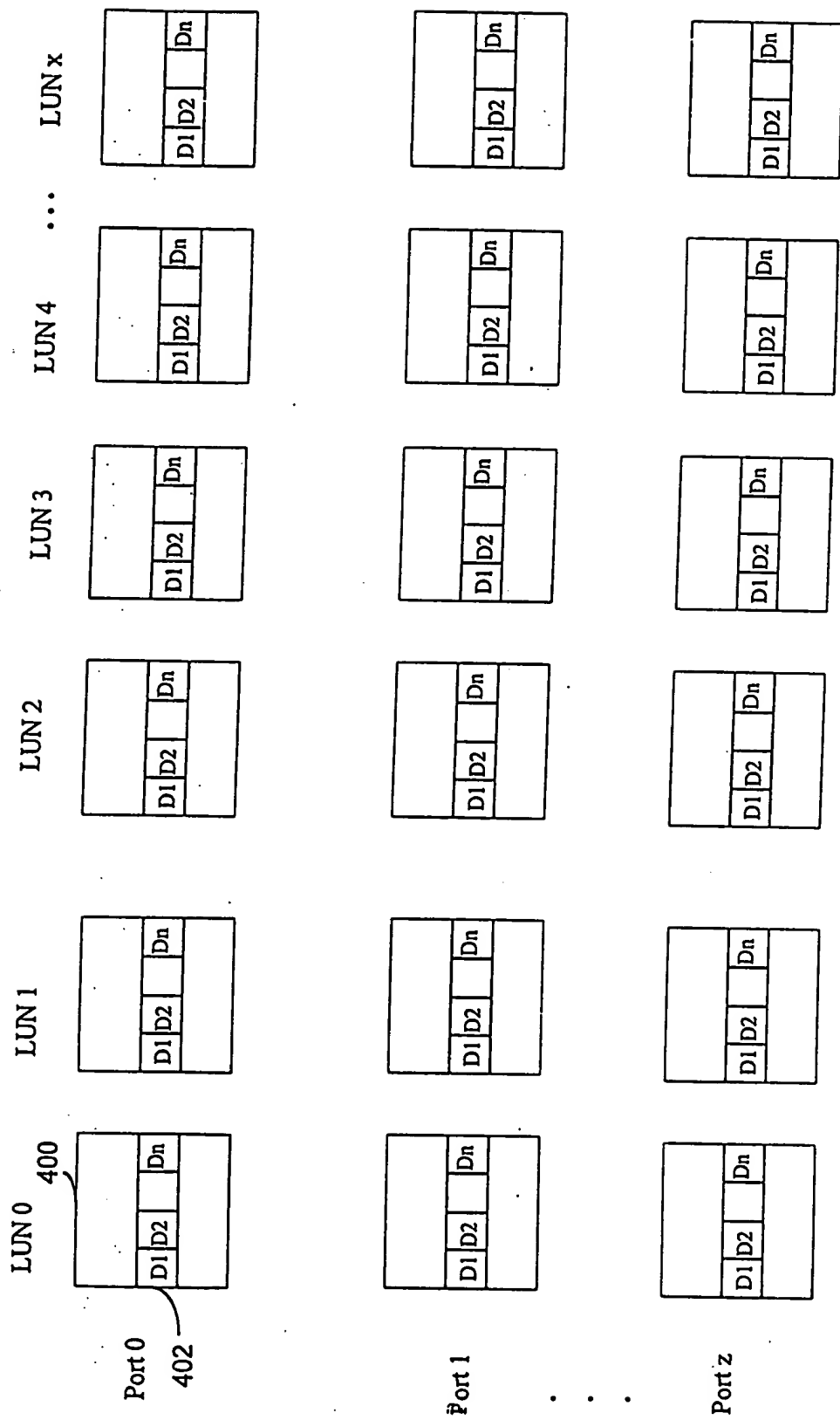


FIG. 5

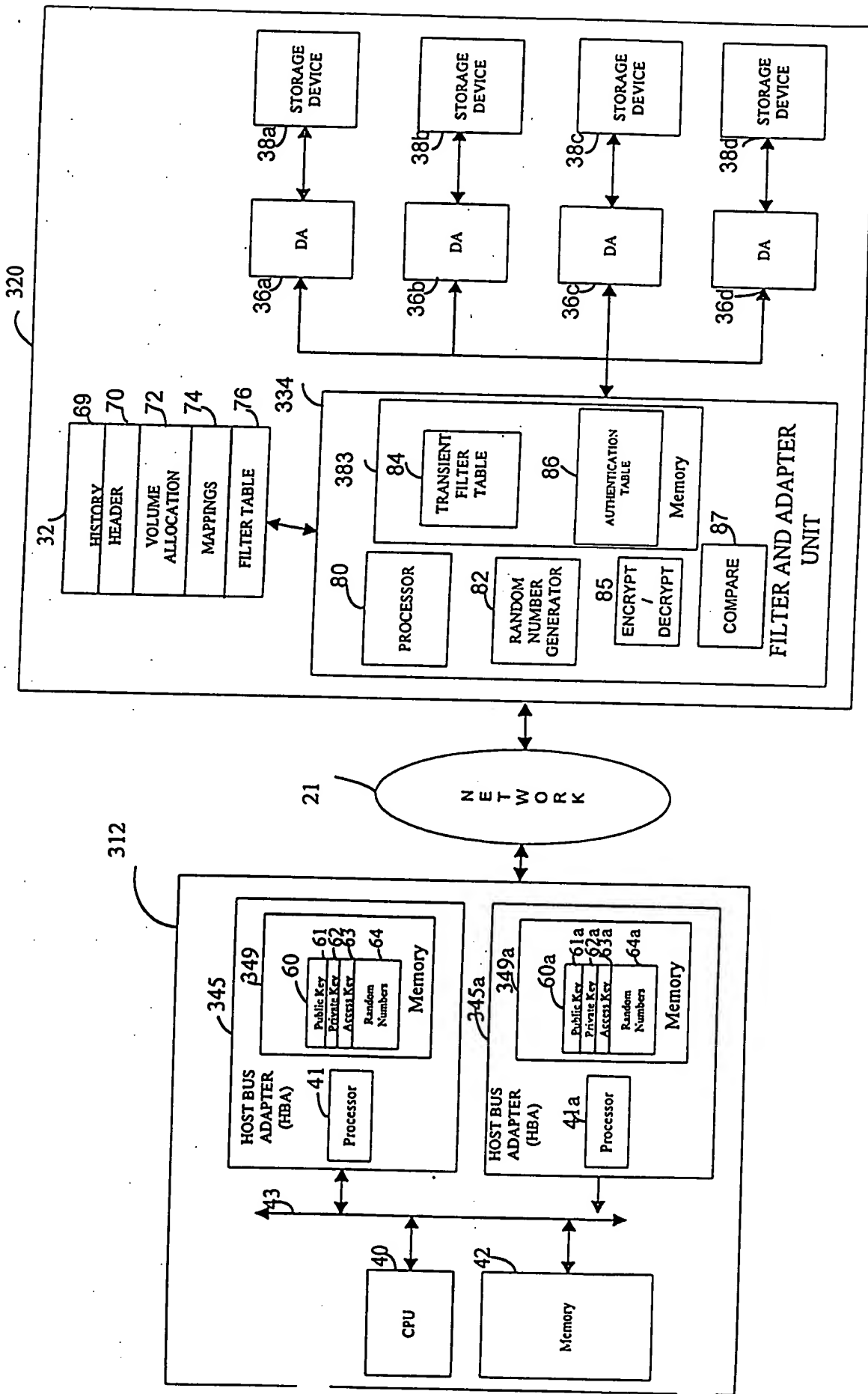
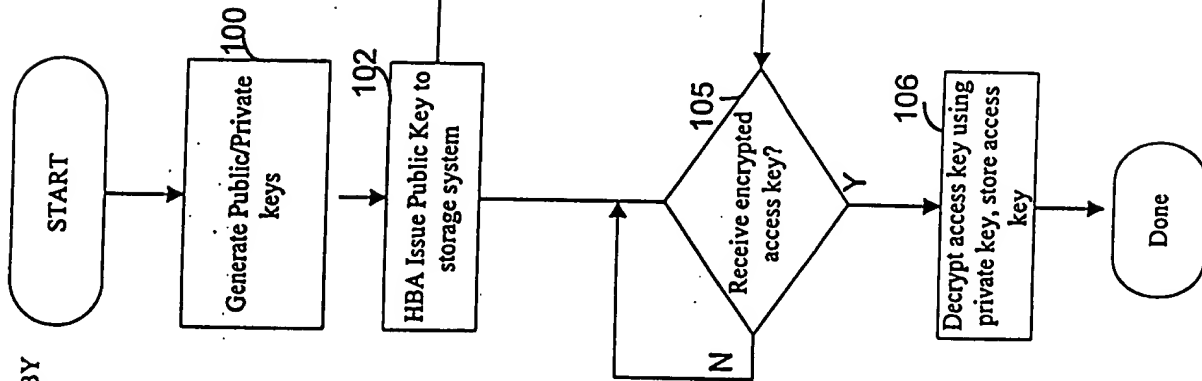


FIG. 6

FUNCTIONS PERFORMED BY
HBA



FUNCTIONS PERFORMED BY
STORAGE SYSTEM 320

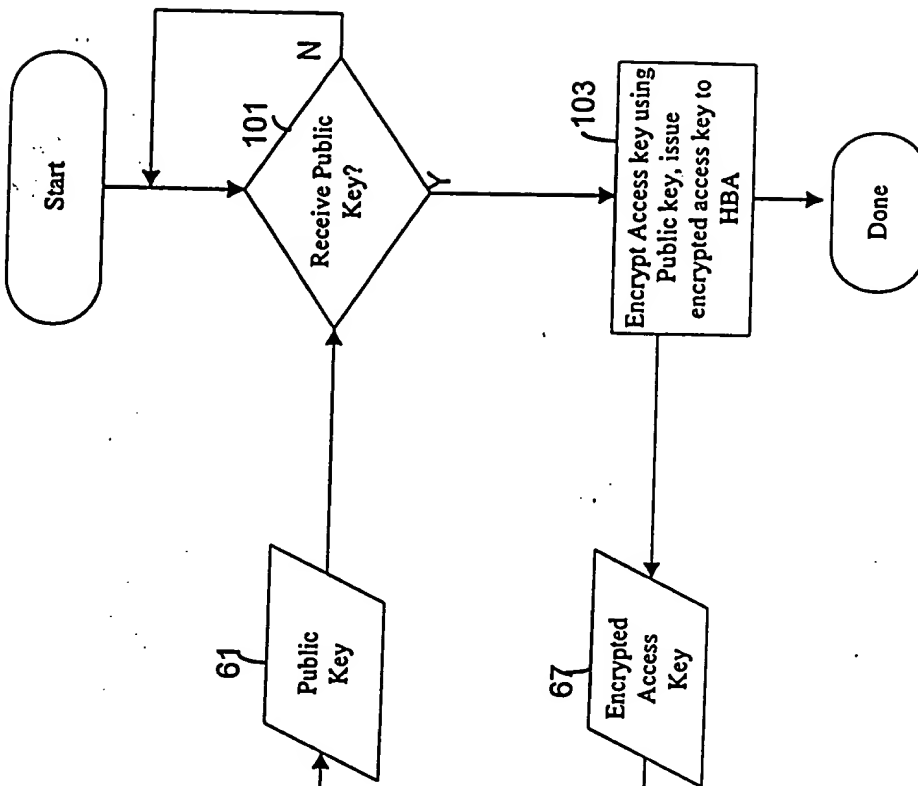


FIG. 7

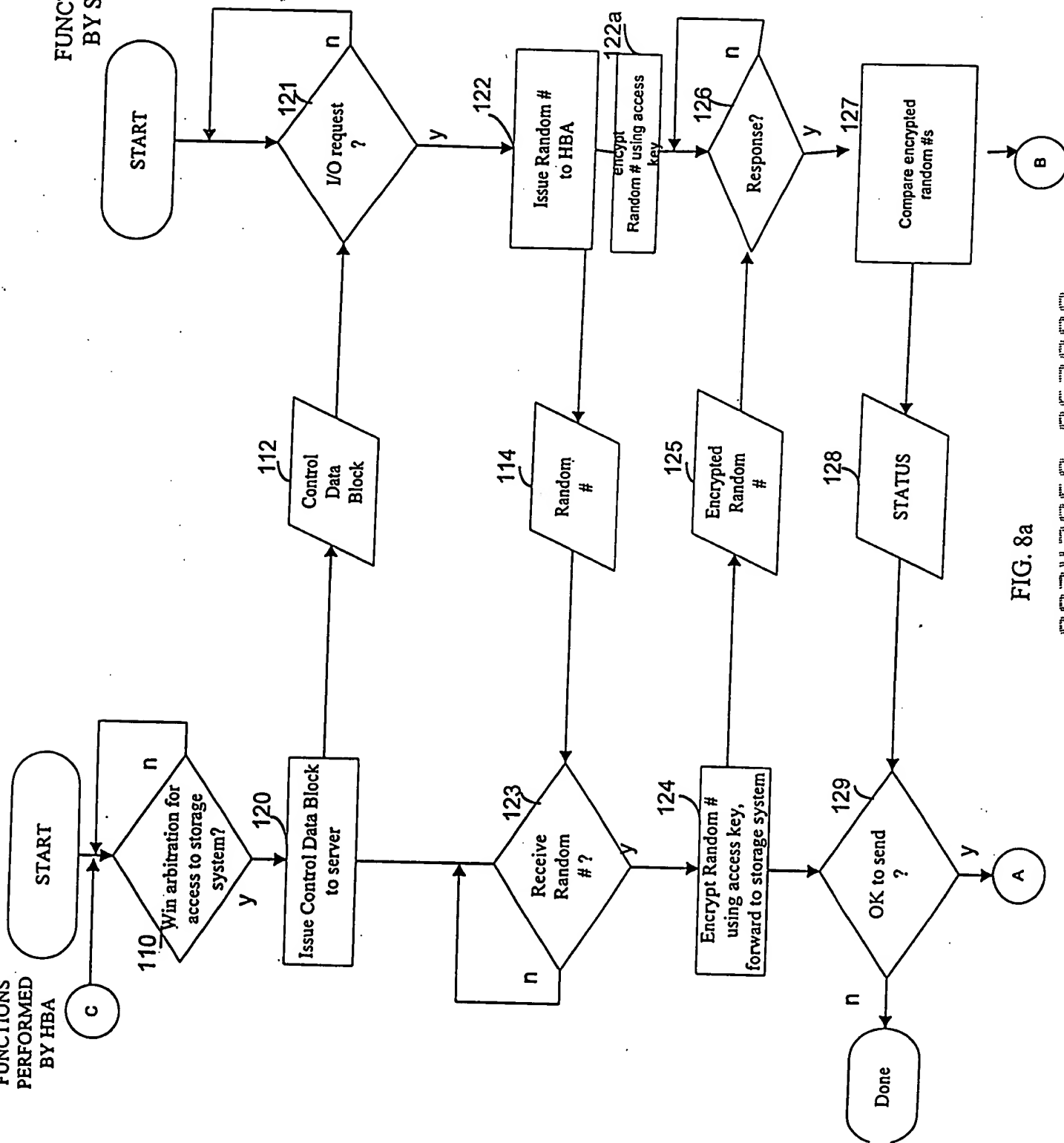


FIG. 8a

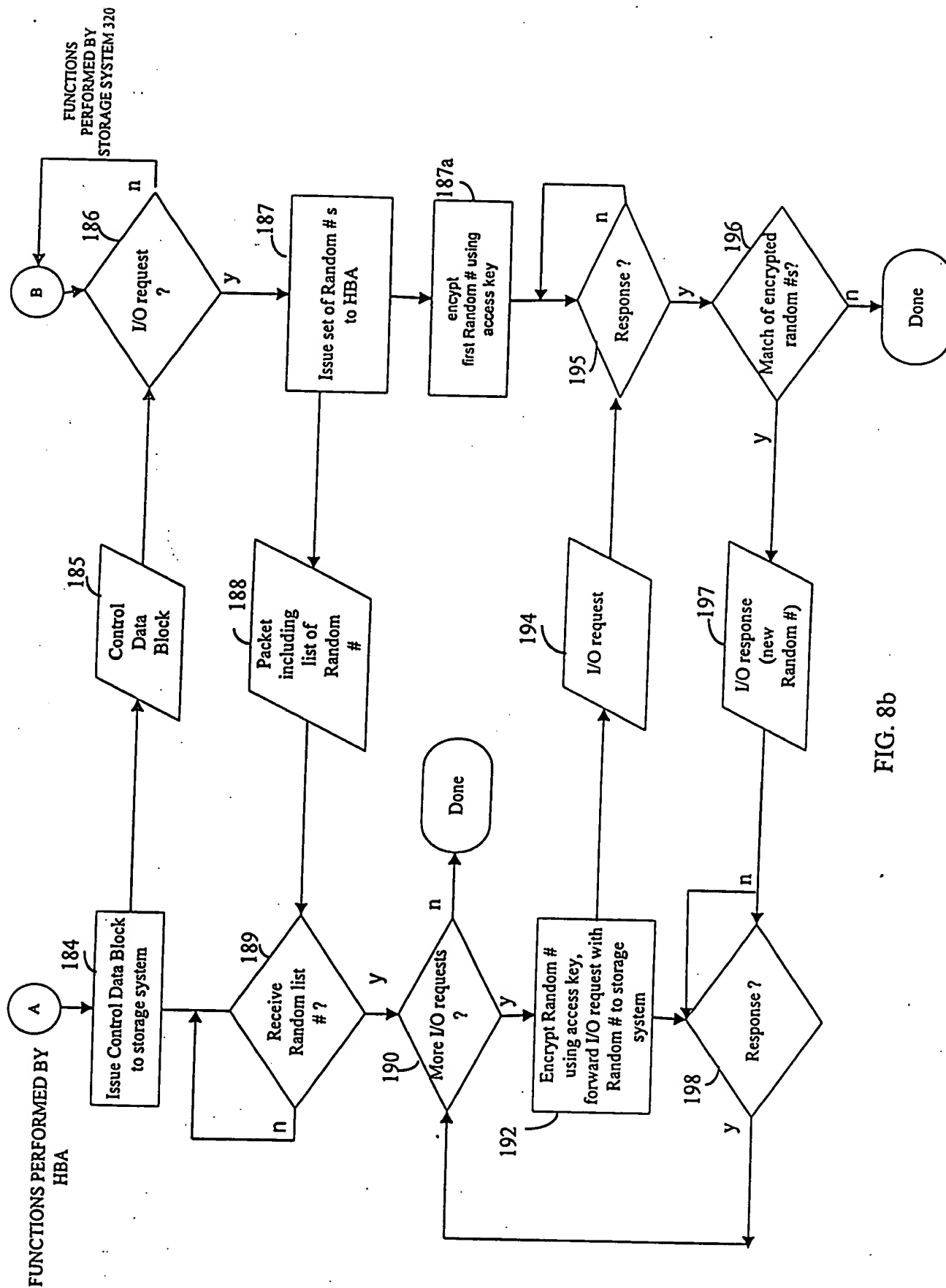


FIG. 8b

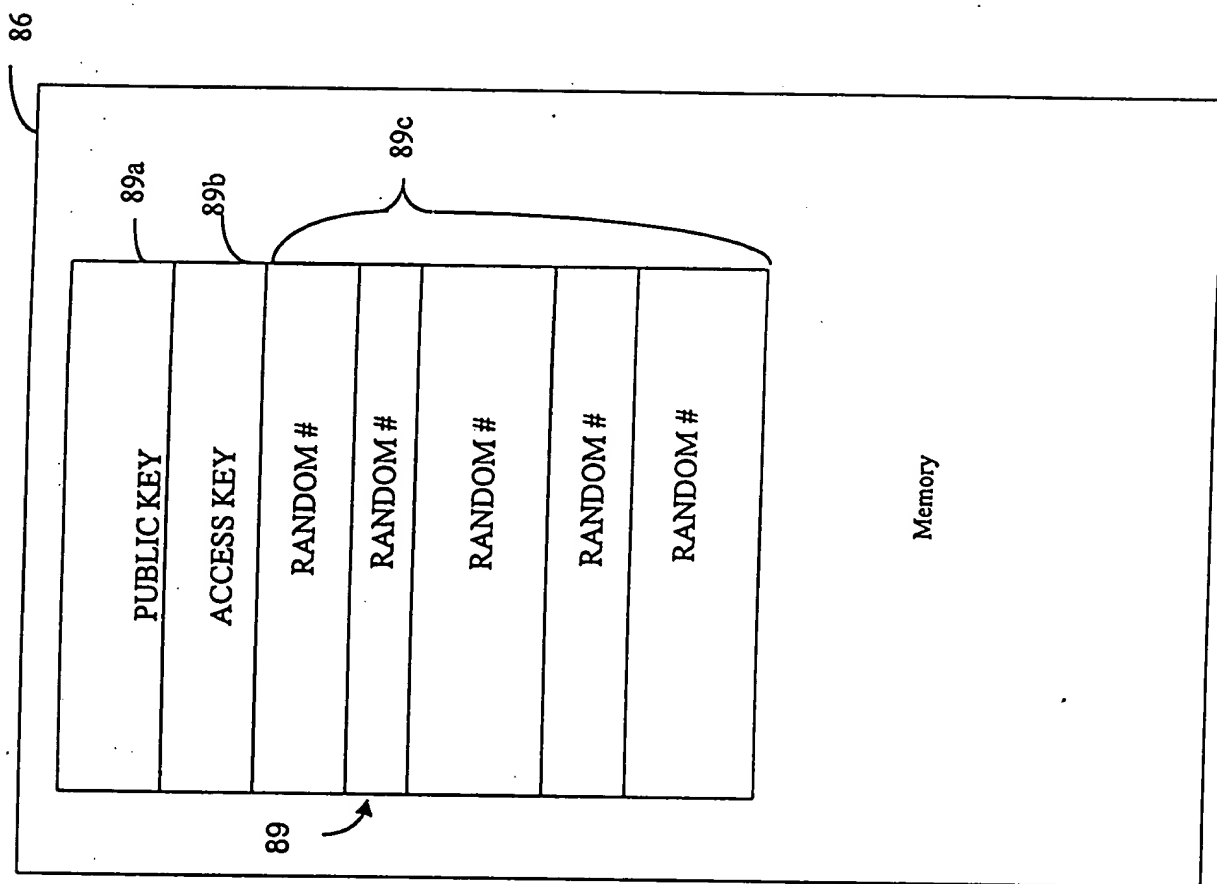


FIG. 9

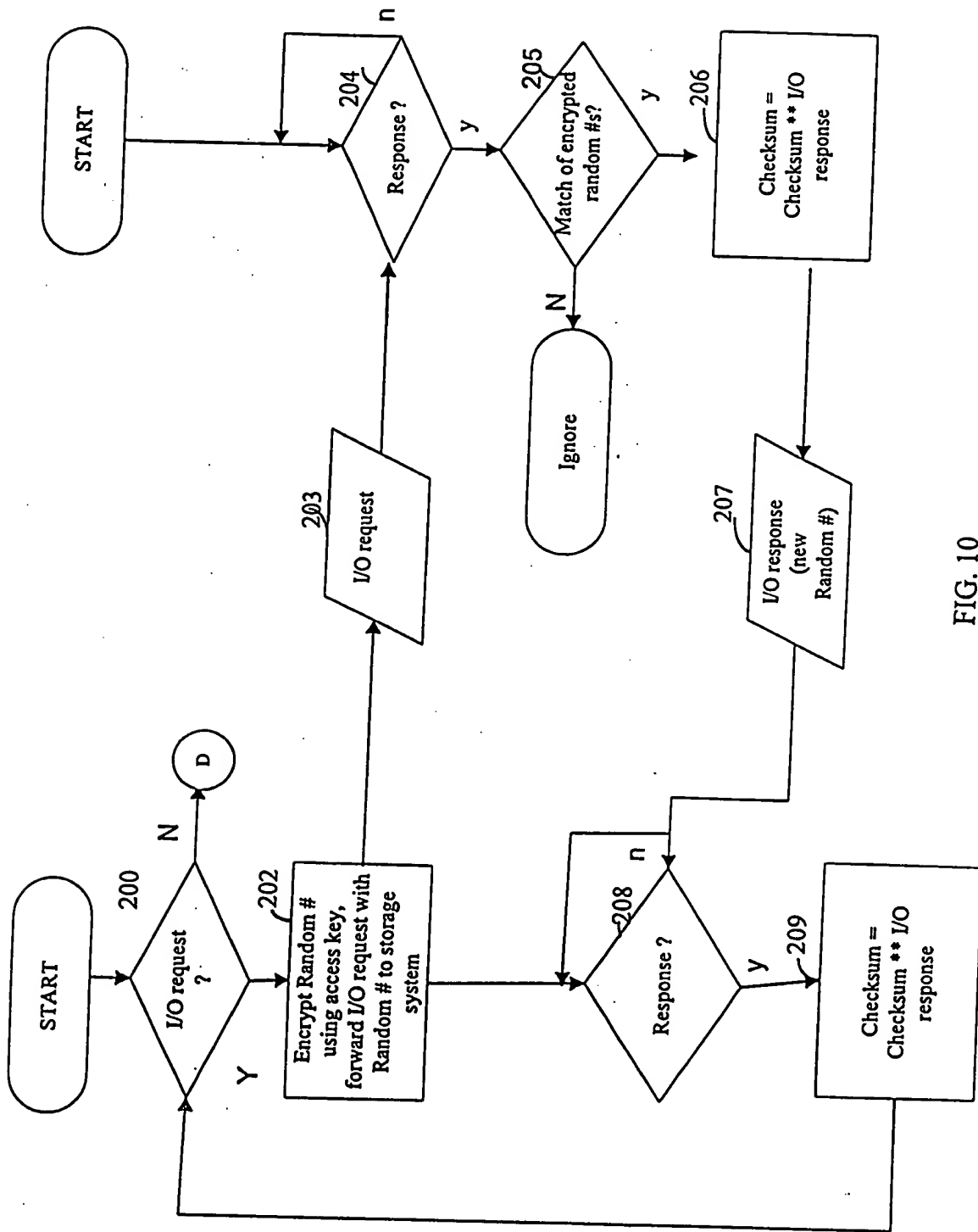


FIG. 10

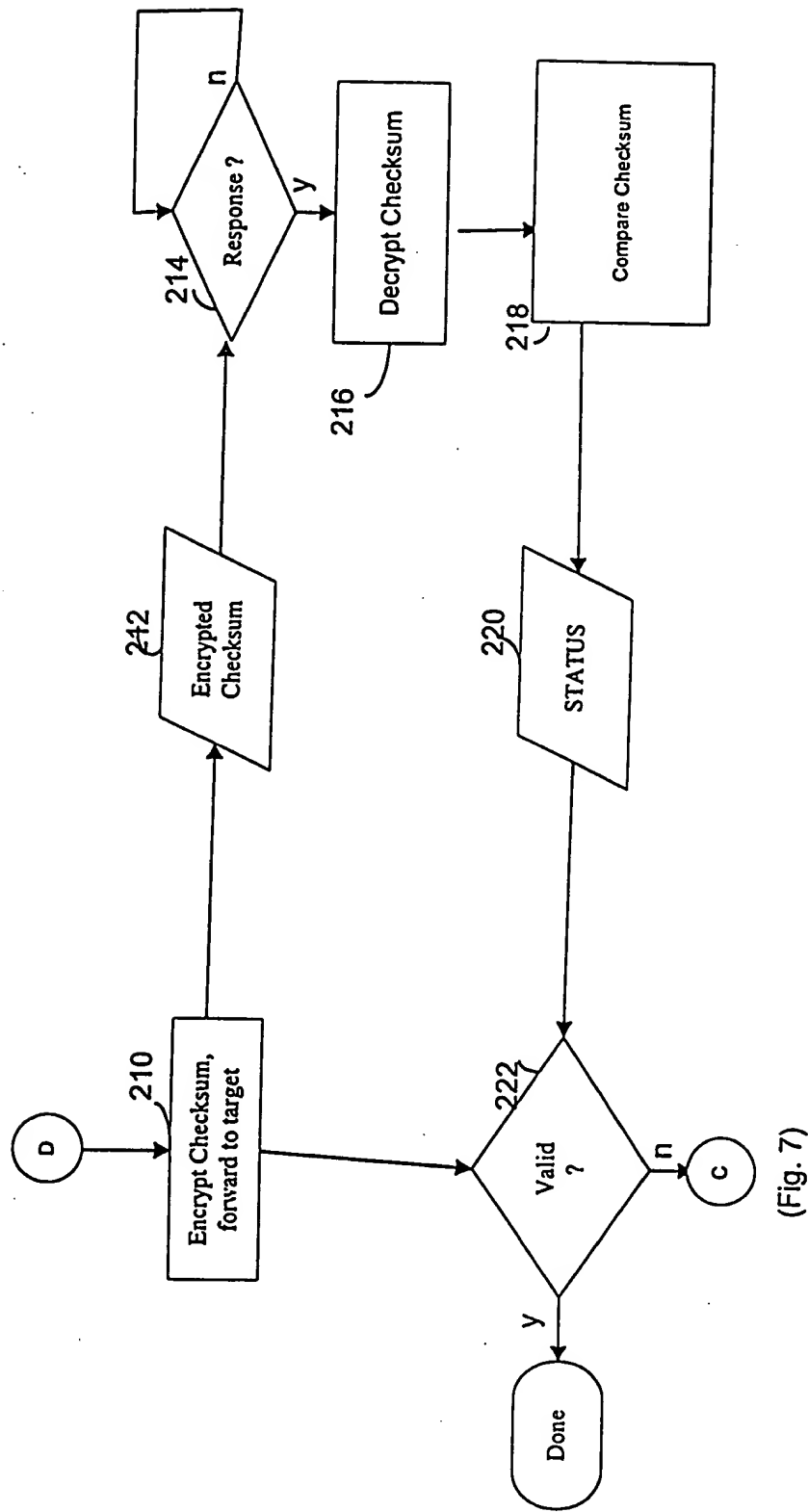


FIG. 11

(Fig. 7)

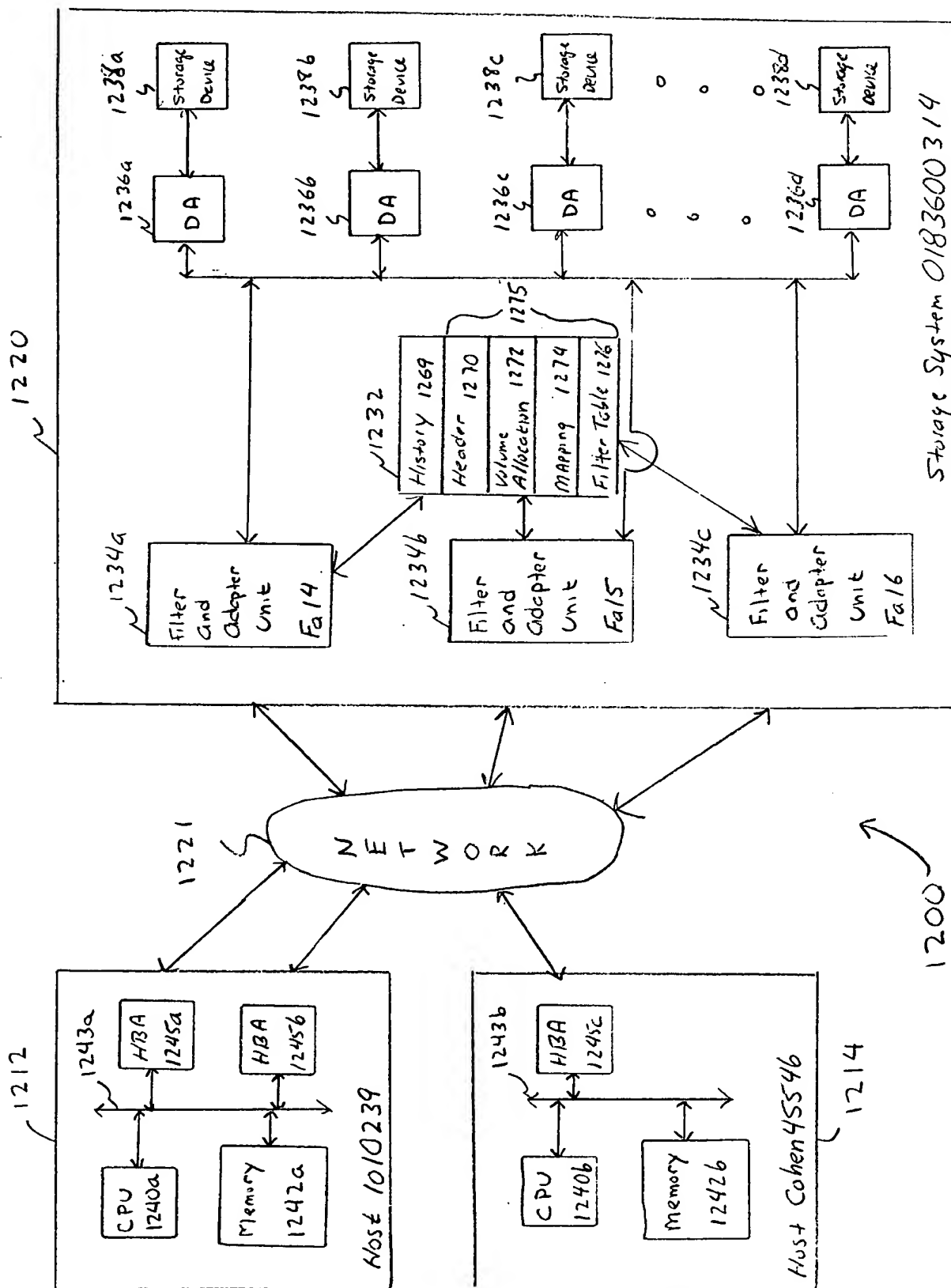


Fig. 12

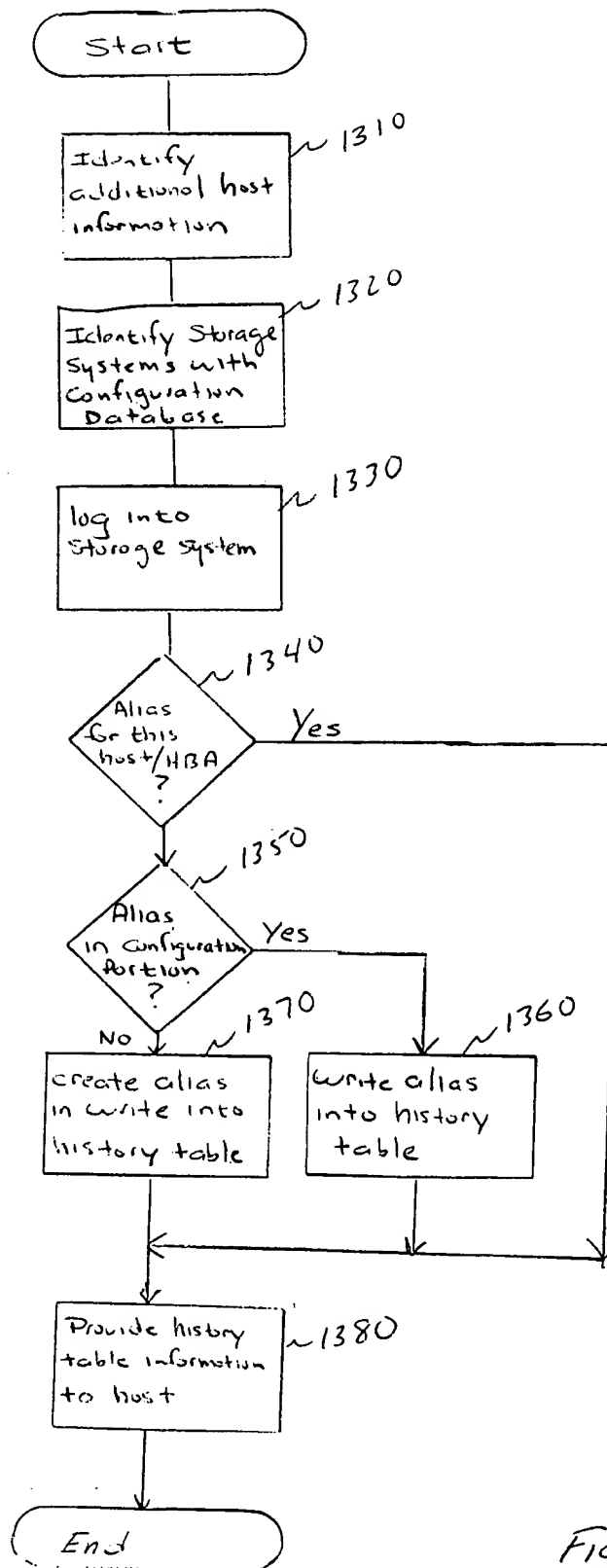


Fig. 13

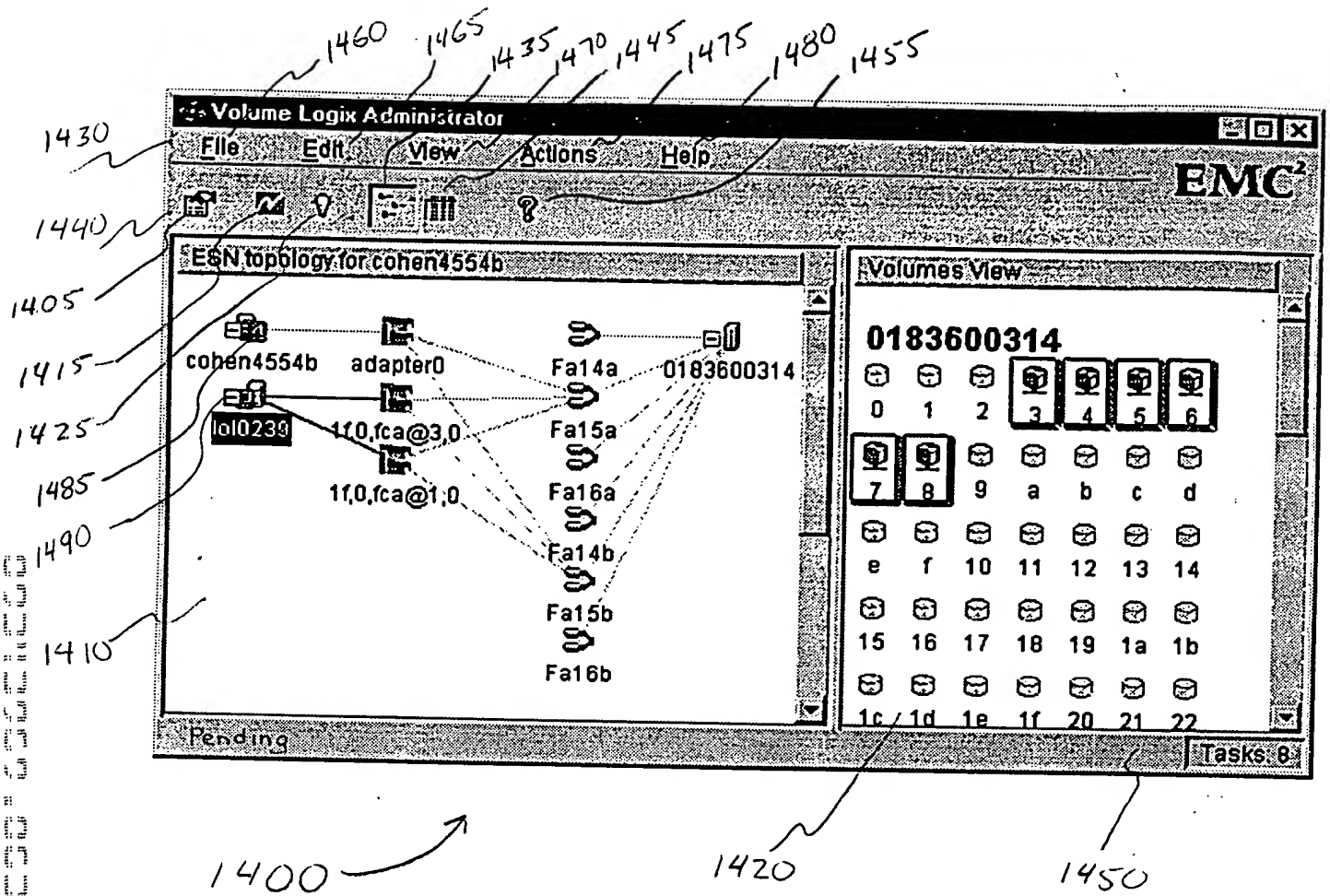


Fig. 14












| | | |
|--------|---|---------------------------------------|
| 1505 ~ |  | Storage System |
| 1510 ~ |  | Storage Port |
| 1515 ~ |  | Host Processor |
| 1520 ~ |  | Administrator Host Processor |
| 1525 ~ |  | Host Bus Adapter |
| 1530 ~ |  | Storage Volume |
| 1535 ~ |  | Assigned Storage Volume |
| 1540 ~ |  | Shared, Assigned Storage Volume |
| 1545 ~ |  | Configuration Database Storage Volume |
| 1550 ~ |  | Mirrored Storage Volume |
| 1555 ~ |  | Concatenated Storage Volume |

Fig. 15

| Volumes | Capacity | Symmetry | Symm Ports | Owners |
|---------|----------|------------|--------------|--------------------|
| 0 | 0.0 | 9000003077 | Fa3a, Fa15a | sargent-fcaPort0 |
| 1 | 0.0 | 9000003077 | Fa3a | sargent-fcaPort0 |
| 2 | 0.0 | 9000003077 | Fa3a | sargent-fcaPort0 |
| 3 | 0.0 | 9000003077 | Fa3a, Fa16b | sargent-fcaPort0 |
| 4 | 0.0 | 9000003077 | Fa3a | sargent-fcaPort0 |
| 5 | 0.0 | 9000003077 | Fa3a | None |
| 6 | 0.0 | 9000003077 | Fa3a | None |
| 7 | 0.0 | 9000003077 | Fa3a | vermeer-fca@2.D... |
| 8 | 0.0 | 9000003077 | Fa15a | sargent-fcaPort0 |
| 9 | 0.0 | 9000003077 | Fa15a | sargent-fcaPort0 |
| a | 0.0 | 9000003077 | Fa15a | None |
| b | 0.0 | 9000003077 | Fa15a | None |
| c | 0.0 | 9000003077 | Fa15a | None |
| d | 0.0 | 9000003077 | Fa15a | None |
| e | 0.0 | 9000003077 | Fa15a | None |
| f | 0.0 | 9000003077 | Fa15a | None |
| 18 | 0.0 | 9000003078 | Fa15b | None |
| 19 | 0.0 | 9000003078 | Fa15b | None |
| 1a | 0.0 | 9000003078 | Fa15b | None |
| 1b | 0.0 | 9000003078 | Fa15b | None |
| 1c | 0.0 | 9000003078 | Fa15b | None |
| 1d | 0.0 | 9000003078 | Fa15b | None |
| 1e | 0.0 | 9000003078 | Fa14b, Fa15b | None |
| 1f | 0.0 | 9000003078 | Fa14b, Fa15b | None |
| 20 | 0.0 | 9000003078 | Fa14b, Fa15b | None |

1620

Fig. 16

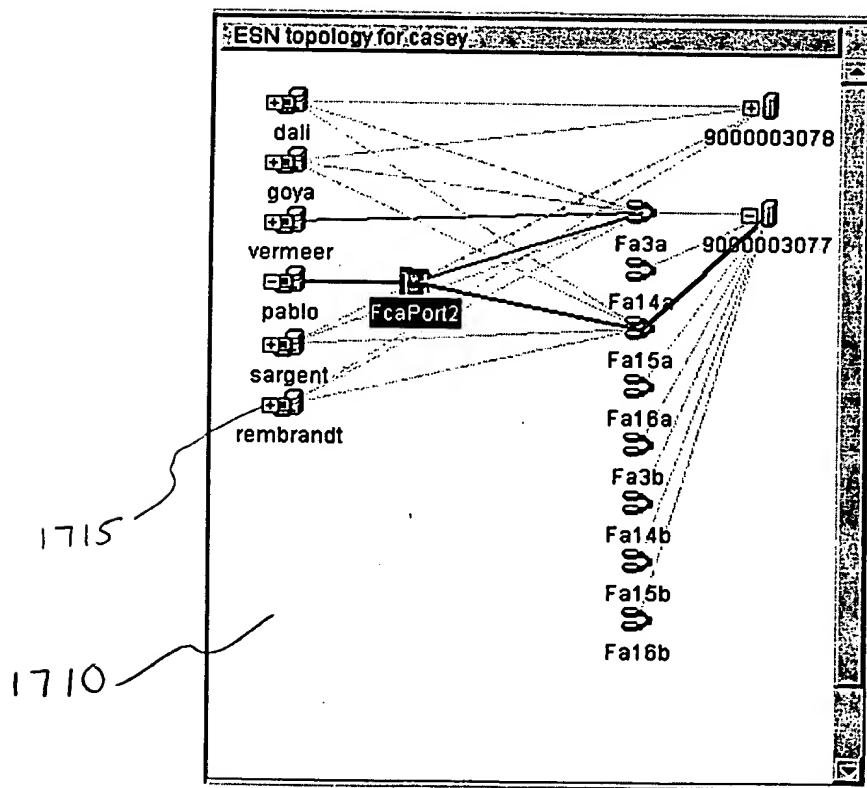


Fig. 17

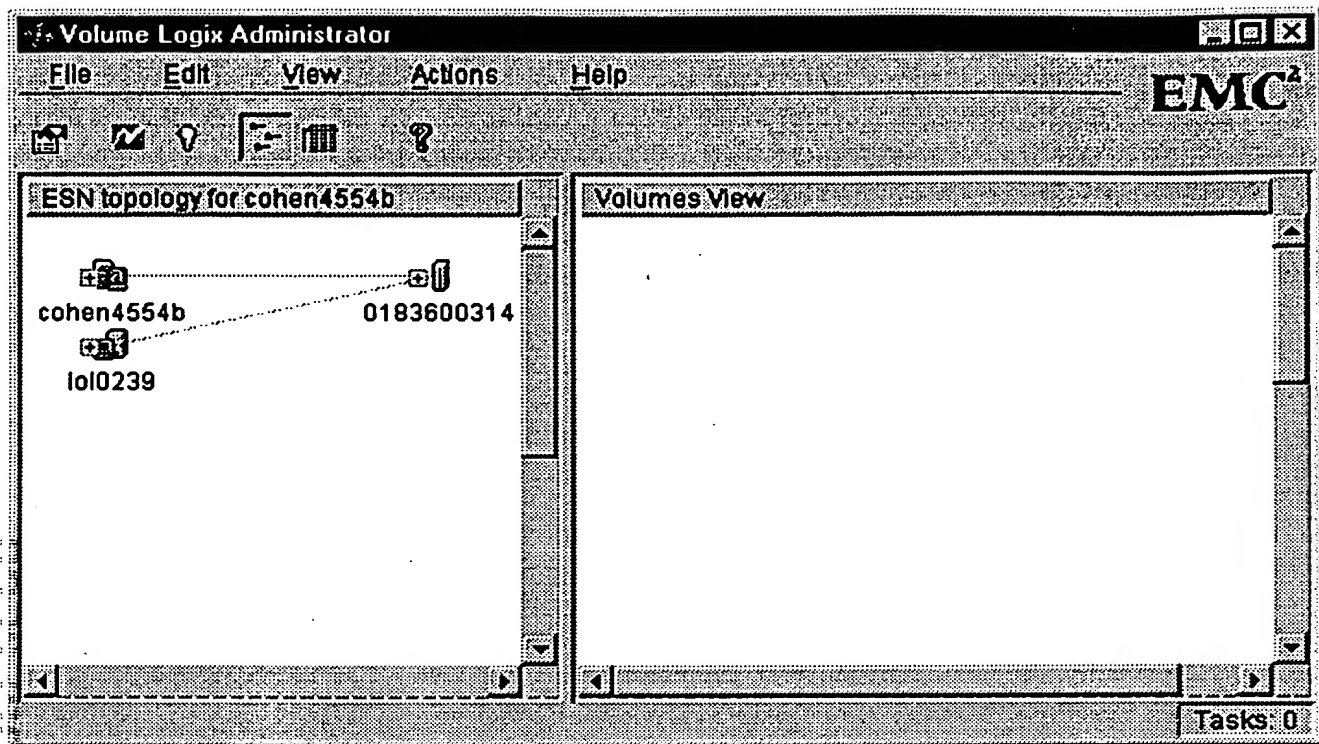
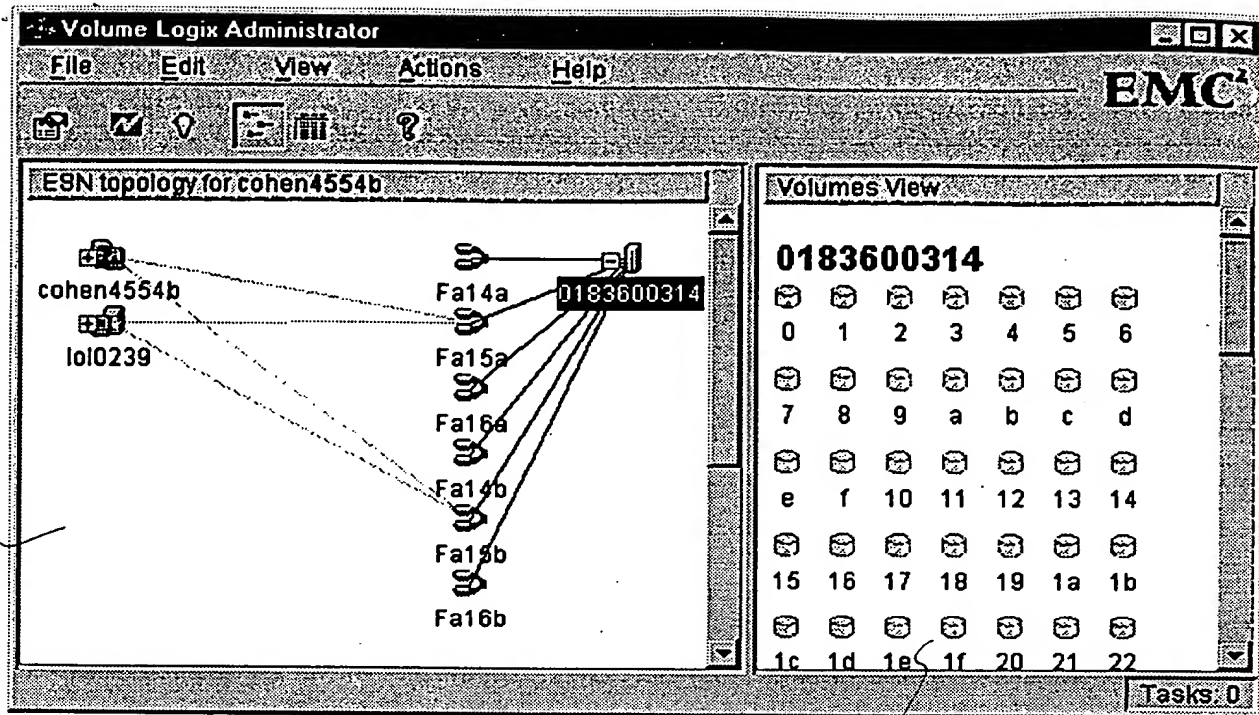


Fig. 18

1800 ↗



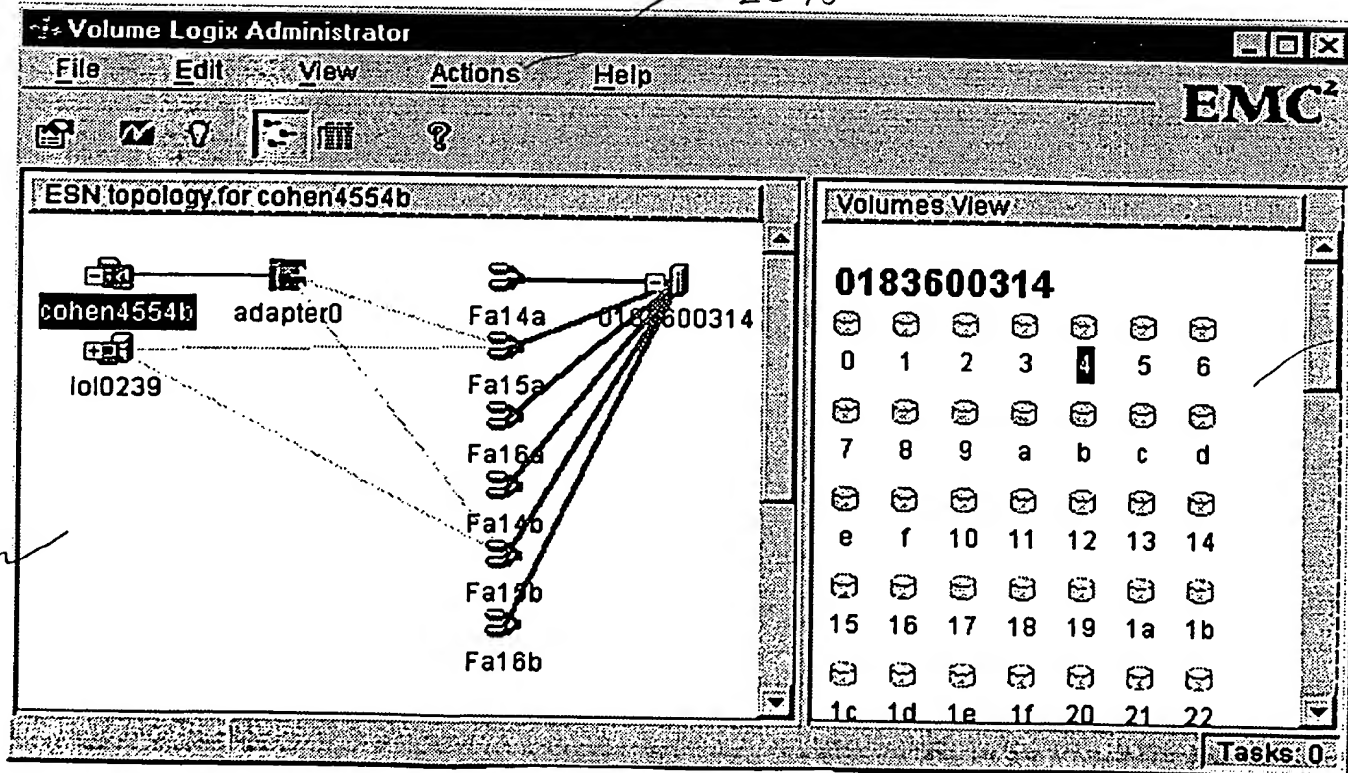
1900

Fig. 19

1920

Fig. 20

2075



2010

2020

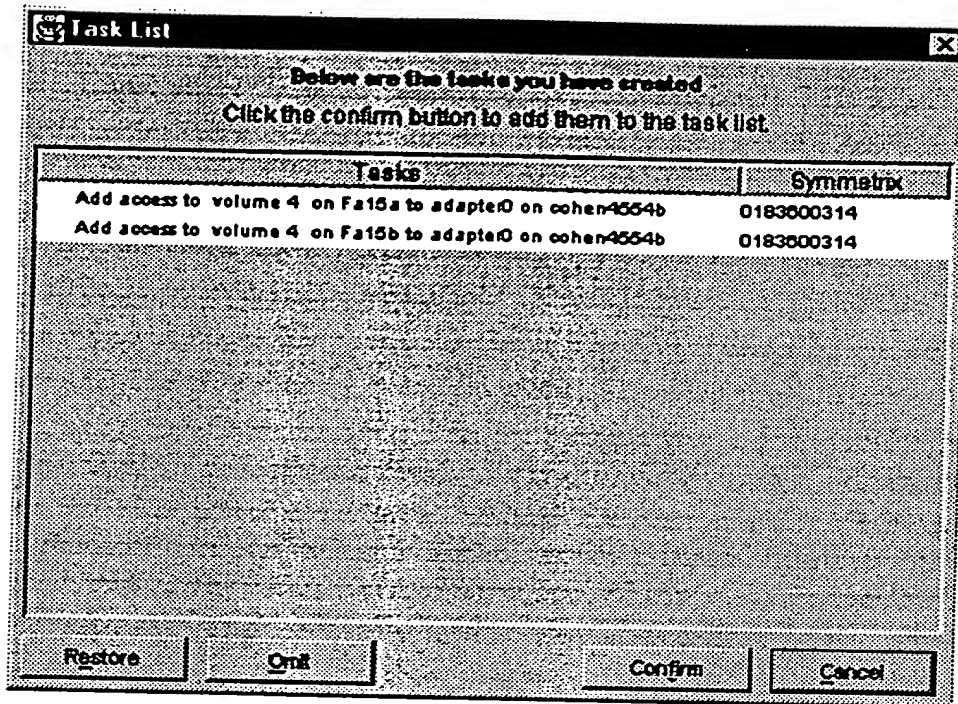


Fig. 21

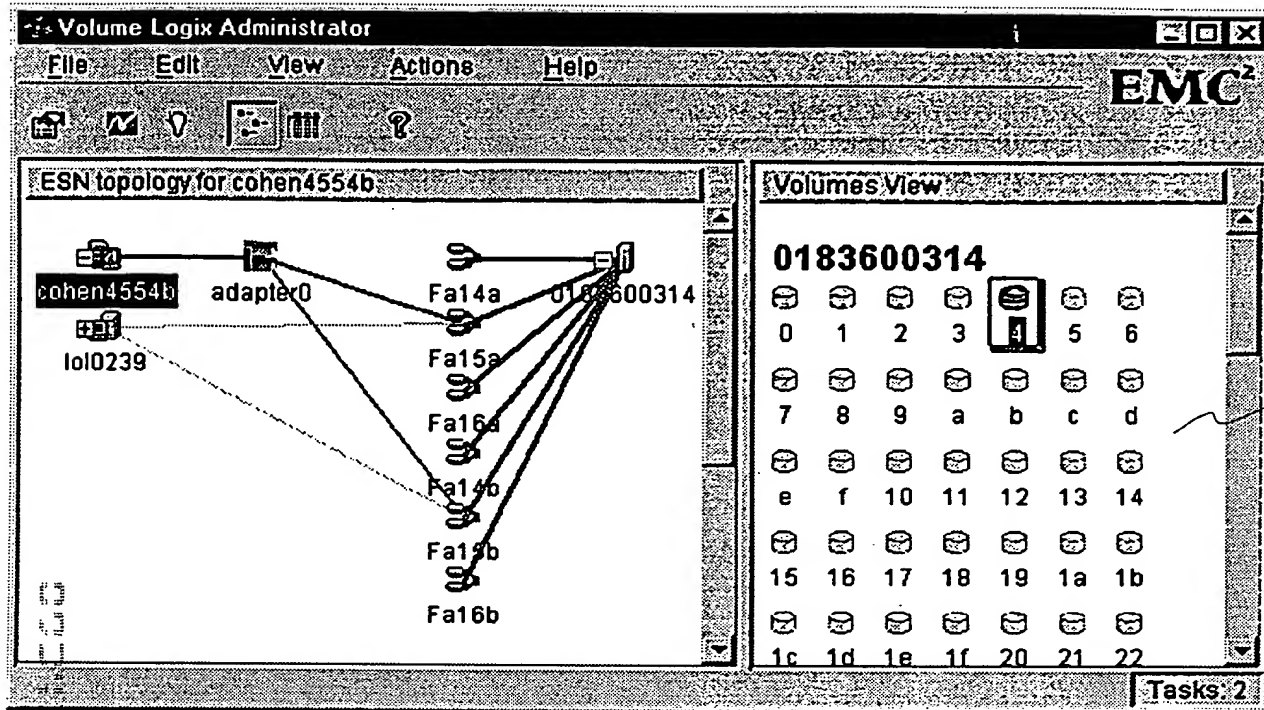


Fig. 22

2200 →